

REMARKS

Claims 1-4 and 6-39 are all the claims pending in the application. Claim 5 has been canceled without prejudice or disclaimer. Claims 22-39 have been added to further define the invention. Reconsideration and allowance of all the claims are respectfully requested in view of the following remarks.

Specification

The Examiner requested that a new title be provided that is more clearly indicative of the invention to which the claims are directed. Applicants respectfully traverse the necessity of this request for the following reasons. The title recites a “wheel rotation detecting device”, which is the same as that set forth in the preamble of the claims. Accordingly, Applicants believe that the title is indicative of the invention to which the claims are directed. If the Examiner persists in maintaining this request, Applicants respectfully request that the Examiner suggest a title more suitable to him.

The Examiner objected to the abstract of the disclosure as not setting forth the nature and gist of the invention. Applicants have amended the abstract to more clearly set forth the nature and gist of the invention.

The Examiner requested Applicants cooperation in correcting any errors, in the lengthy specification, of which Applicant may become aware. Currently, Applicants are not aware of any such errors.

Drawings

The Examiner asserted that Figure 19 should be designated by a legend such as --Prior Art--. Accordingly, submitted herewith is a corrected drawing sheet 12/12 wherein Fig. 19 has been labeled --Prior Art--.

Claim Rejections - 35 U.S.C. § 112

The Examiner rejected claims 10, 11, 14-17, and 19-21, under § 112, 2nd paragraph, as indefinite. The Examiner pointed out specific instances of alleged indefiniteness on page 3 of the Office Action. Applicants have amended claims 10, 11, 14, 15, and 19-21 in a manner believed to overcome this rejection. In doing so, however, the claims have not been narrowed, the elements merely have been rearranged to more clearly set forth the claimed subject matter.

Claim Rejections - 35 U.S.C. § 102

The Examiner rejected claims 1-21 under §102(b) as being anticipated by US Patent 6,161,962 to French et al. (hereinafter French). Applicants respectfully traverse this rejection because French fails to disclose every element as set forth and arranged in Applicants' claims.

Claim 1, sets forth a wheel rotation detection device comprising a first sensor for detecting the rotation of the rotary ring. Further, the wheel rotation detection device has a second sensor for detecting the condition of the rolling bearing unit. The first and second sensors are supported by a holder made of a synthetic resin. See Fig. 2, for example. The synthetic-resin holder can be used as a holder, as shown in Fig. 1, for example.

According to dependent claim 6, the holder made of the synthetic resin is retained within a case made of non-magnetic material, and is used as shown in Fig. 1, for example.

In order to prevent the first sensor from being affected by magnetic flux, the present invention forms the holder of non-magnetic material (or synthetic resin). In the presently claimed invention, the holder made of resin is not held by a magnetic case.

In French, a shank holds a plurality of sensors in its hollow interior by a potting compound. Alternatively, the shank may be injection molded with the sensors embedded in the shank. However, French does not disclose that either the potting resin or the injection molded material is a synthetic resin. At best, French is ambiguous as to the specific material from which the shank and potting resin may be made. And any ambiguity of the reference should be construed against the Examiner. See *In re Robertson*, 49 U.S.P.Q.2d 1949 (Fed. Cir. 1999).

Further, in French, the shank for holding the sensors requires a hollow interior. The sensors detect physical characteristics or health of the bearing. Accordingly, French does not always require the first sensor of independent claim 1. Namely, in French, a speed sensor in the hollow interior of the shank is affected by the magnetic flux. Therefore, in French, it is not considered that the holder needs to be non-magnetic.

For at least any of the above reasons, claim 1 is not anticipated by French. Likewise, dependent claims 2-4, 6-9, and 12-15, are not anticipated by this reference.

Claim 29 sets forth a vibration sensor that has a function of detecting vibrations in a plurality of directions. On the contrary, French does not disclose a vibration sensor that detects vibrations in two or more directions. Accordingly, claim 29 is not anticipated by French. Likewise, dependent claims 9-11 are not anticipated by this reference.

Claim 30 sets forth an acceleration sensor that has a function of detecting acceleration in a plurality of directions. On the contrary, French does not disclose an acceleration sensor that detects accelerations in two or more directions. Accordingly, claim 30 is not anticipated by French. Likewise, dependent claims 31 and 32 are not anticipated by this reference.

Claim 33 sets forth an abnormality determination circuit for judging the presence or absence of an abnormality in accordance with signals representing a period of the vibration and a signal representing the rotation speed of the rotary ring. In contrast to that in claim 33, French does not disclose the use of a component of the vibration nor an abnormality determination circuit for judging the present or absence of an abnormality in accordance therewith. Accordingly, claim 33 is not anticipated by French. Likewise, dependent claims 18 and 19 are not anticipated by this reference.

Claim 34 sets forth a frequency analysis circuit, and an abnormality determination circuit. In contrast, French does not disclose any of these elements. accordingly, French fails to anticipate claim 34. Likewise, dependent claims 21 and 35 are not anticipated by this reference.

Claim 36 sets forth a speed sensor including an S pole, and an N pole and non-magnetized areas disposed on a peripheral surface thereof so as to repeat one another at regular intervals. This construction makes it possible to detect the rotation direction by one encoder.

Conventionally, two encoders are required to detect the rotation direction, since the conventional speed sensor includes only S pole and N pole. In contrast to that set forth in claim 36, French neither considers that rotation direction is detected, nor teaches that the rotation direction is detected by one encoder.

For at least any of the above reasons, claim 36 is not anticipated by French. Likewise, dependent claim 13, which sets forth similar subject matter to that in claim 36, is not anticipated by French.

Claim 37 sets forth a threshold value setting circuit that sets, in accordance with the rotation speed, a threshold value for judgment of an abnormality. In contrast to that set forth in claim 37, French does not disclose a threshold value setting circuit that sets a threshold value. Accordingly, claim 37 is not anticipated by French. Likewise, dependent claims 15-17, 20, 38, and 39, are not anticipated by this reference.

Conclusion

New claims 22-39 have been added to further define the invention. New claims 22-39 are patentable over French at least for the reasons as set forth above.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

Amendment Under 37 C.F.R. § 1.111
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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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